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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,430	08/18/2005	Guy D. Diana	1282-Anti-HepC-Po16-US01	2400

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EXAMINER	
ROBINSON, BINTA M	

ART UNIT	PAPER NUMBER
1625	

MAIL DATE	DELIVERY MODE
09/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/511,430	DIANA ET AL.	
	Examiner	Art Unit	
	BINTA M. ROBINSON	1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *10-35* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

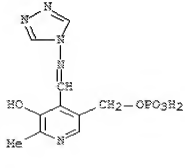
1. Detailed Action

2. The examiner notes the applicant's election of group I, drawn to claims 1-9 without traverse and election of species of example 1. Election of species practice will be followed with respect to the examination of claims 1-9. Claims 10-35 are withdrawn from examination as being drawn to non-elected subject matter. The applicant traverses the examiner's assertion that the species lack a common core. However, the species do not contain a common core as is evident by the substituents such as R that can be any substituted heterocyclic radical, or any substituted aryl, or any substituted (C1-C6 alkyl).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Hcaplus 60:69598. Hcaplus 60:69598 discloses the instant compound, 

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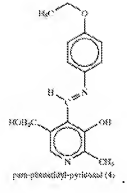
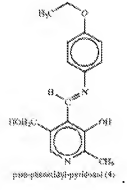
5. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Maidonis et. al. Maidonis et. al. discloses the instant compound,



. At column 2, line 36, see the instant compound,



.

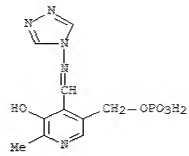
6.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

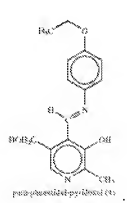
8. Claims 2, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hcaplus 60:69598.

9. Hcaplus 60:69598.

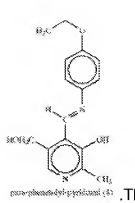


teaches the instant compound, . The difference between the prior art compounds and the claimed compositions is the teaching of a compound mixed with a pharmaceutically acceptable carrier in the instant application versus a compound that is taught in the prior art that is not mixed with a pharmaceutically acceptable carrier. It would have been obvious to one of ordinary skill in the art to make pharmaceutical compositions out of these compounds because it is obvious to place these compounds in ethanol or another, non-toxic solvent in which they are soluble, because they are soluble in ethanol or other non-toxic solvents. Accordingly, the compositions and process of making them are deemed unpatentable therefrom in the absence of a showing of unexpected results for the claimed compositions and process of making them over those of the prior art compounds.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over



Maidonis et. al.Maidonis et. al. teaches the instant compound, .

At column 2, line 36, see the instant compound,  .The difference between the prior art compounds and the claimed compositions is the teaching of a compound mixed with a pharmaceutically acceptable carrier in the instant application versus a compound that is taught in the prior art that is not mixed with a pharmaceutically acceptable carrier. It would have been obvious to one of ordinary skill in the art to make pharmaceutical compositions out of these compounds because it is obvious to place these compounds in ethanol or another, non-toxic solvent in which they are soluble, because they are soluble in ethanol or other non-toxic solvents. Accordingly, the compositions and process of making them are deemed unpatentable therefrom in the absence of a showing of unexpected results for the claimed compositions and process of making them over those of the prior art compounds.

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-9 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treating some flaviviral infections and diseases associated with these infections, does not reasonably provide enablement for treating all viral infections or associated diseases or prevention of any viral infection or associated diseases. The specification does not enable any physician skilled in the art of medicine, to make the invention commensurate in scope with these claims. The how to make requirement of the enablement statute, when applied to process claims, refers to operability and how to make the claimed process work. "The factors to be considered [in making an enablement rejection] have been summarized as the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples, the nature of the invention, the state of the prior art, the relative skill of those in that art, the predictability or unpredictability of the art and the breadth of the claims", *In re Rainer*, 146 USPQ 218 (1965); *In re Colianni*, 195 USPQ 150, *Ex parte Formal*, 230 USPQ 546. The main issues are the correlation between clinical efficacy for treatment and prevention of all viral infections and diseases associated with all viral infections and Applicants' *in vitro RdRp* assay.

a) Determining if any particular claimed compound would treat or prevent any particular viral infection or associated disease would require synthesis of the compound, formulation into a suitable dosage form, and subjecting it clinical trials with a number of fundamentally different diseases and viral infections, or to testing them in an assay known to be correlated to clinical efficacy of such treatment and prevention. This is a large quantity of experimentation. b) The direction concerning treating and preventing viral infections and associated diseases is found at page 4, lines 6-10, which merely states Applicants' intention to do so. Applicants describe formulations at page 16, lines 1-9. Doses required to practice their invention are described at page 22, line 20. A 5000-fold range of doses is recommended. There are no guidelines for determining the doses needed to provide an antiviral and RdRp protein inhibitory effect. Are identical doses to be used for treating these unrelated diseases? There is an *in vitro RdRp* assay described at pages 32-33 of the specification but it is unclear if this assay is correlated to the treatment or prevention of all viral infections and associated diseases. c) There is no working example of treatment or prevention of any disease in man or animals. d) The nature of the invention is clinical treatment and prevention of viral infections and associated diseases which involves physiological activity. e) The state of the clinical

arts is that Flaviviruses are important pathogens of man and that there are at least 38 flaviviruses associated with human disease. See page 3, lines 1-6 of the specification. Currently, there are no antiviral pharmaceuticals to prevent or treat pestivirus or flavivirus infections. See page 3 of the specification.

f) The artisan using Applicants invention would be a physician with a MD degree and several years of experience. g) It is well established that "the scope of enablement varies inversely with the degree of unpredictability of the factors involved", and physiological activity is generally considered to be an unpredictable factor. See *In re Fisher*, 166 USPQ 18, at 24 (In cases involving unpredictable factors, such as most chemical reactions and physiological activity, the scope of enablement obviously varies inversely with the degree of unpredictability of the factors involved.), *Nationwide Chemical Corporation, et al. v. Wright, et al.*, 192 USPQ 95 (one skilled in chemical and biological arts cannot always reasonably predict how different chemical compounds and elements might behave under varying circumstances), *Ex parte Sudilovsky* 21 USPQ2d 1702 (Appellant's invention concerns pharmaceutical activity. Because there is no evidence of record of analogous activity for similar compounds, the art is relatively unpredictable) *In re Wright* 27 USPQ2d 1510 (the physiological activity of

RNA viruses was sufficiently unpredictable that success in developing specific avian recombinant virus vaccine was uncertain). h) The scope of the claims involves all of the thousands of compounds of claim 1 as well as the thousands of infections embraced by the phrase "viral infections" and the hundreds of diseases embraced by the phrase "disease associated with said infection." Thus, the scope of claims is very broad.

MPEP §2164.01(a) states, "A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)." That conclusion is clearly justified here and undue experimentation will be required to practice Applicants' invention.

The elected species is allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binta M. Robinson whose telephone number is (571) 272-0692. The examiner can normally be reached on M-F (9:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Janet Andres can be reached on 571-272-0670.

A facsimile center has been established. The hours of operation are Monday through Friday, 8:45 AM to 4:45 PM. The telecopier numbers for accessing the facsimile machine are (703)308-4242, (703305-3592, and (703305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1600.

11.

/Binta M Robinson/

Examiner, Art Unit 1625

/Janet L. Andres/

Supervisory Patent Examiner, Art Unit 1625